ARGUMENTS FOR PATENTABILITY

The claims have been amended to overcome the indefiniteness noted by the Examiner and to more clearly define the structure which renders Applicant's invention appropriate for serving as a clamp accessory to a welding apparatus.

The clamping accessory of the present invention is effective to clamp two or more sheets which are destined to be welded together by the welding, and, as such, must be designed to firmly retain the sheets in intimate contact during the subsequent welding operation which may accomplished by spot-welding electrodes which are brought together on opposite sides of the stack of sheets to join them, or by arc welding. The principal reference cited by the Examiner relates to spot-welding apparatus which has mechanism to displace the welding electrodes against the opposite sides of the stack of plates to perform the welding function. Although the mechanical movement of the electrode-displacing structures is similar to the displacement of the clamping structures of Applicant's invention, the prior art electrode-displacing apparatus does not need to retain the plates in intimate contact for prolonged periods, nor is it subject to exposure to the splatterings which are more likely to be generated during arc welding operations. Thus, a person skilled in the art would not look to mechanisms for displacing spot-welding electrodes for accomplishing all of the functions required in a general purpose clamping apparatus.

It should be noted that not only is the Hayashi reference directed to electrode-displacing mechanisms but the same is true of the Umeda and the Dellach references.

The claims have been amended to more clearly define the novel features of Applicant's invention. In particular, the amendments to claim 1 more clearly set forth that the body of the apparatus has a central tubular element which surrounds a pneumatic cylinder which effects the actuation of the mobile arm of the clamp. By housing the pneumatic cylinder within a central tubular element, Applicant protects the cylinder from splatterings and other foreign objects so as to insure effective clamping of the two or more sheets for a prolonged period by reason of the actuation of the pneumatic cylinder. Although the Hayashi reference discloses a pneumatic cylinder for actuating the electrodes, it does not teach or suggest the use of a central tubular element surrounding the cylinder. Furthermore, the claim clearly sets forth that the mobile arm is mounted for pivotal movement by the stationary plates disposed at one end of the central tubular element. This is opposed to the Hayashi arrangement in which the mobile arm

mounting one of the electrodes is mounted on the end of the piston rod of the actuating cylinder and is not firmly fixed in position by being mounted on a stationary element of the assembly. These two features of Applicant's invention are neither taught nor suggested by the Hayashi reference and, accordingly claim 1 is believed properly patentable over the Hayashi reference, contrary to the position taken by the Examiner in Paragraph 18 of the Official Action.

Claim 19 has been similarly amended to clearly set forth that the mobile arm is mounted on a fixed pivot shaft supported by plates at the lower end of the central tubular element so that the actuation of the mobile arm is effected by the extension of the piston rod to effect pivotal movement of the arm on the fixed pivot shaft. For this reason, claim 19 defines an invention which is neither taught nor suggested by the Hayashi reference.

Claim 2 sets forth that the lateral plates are welded to the central tubular element. Since the Hayashi patent does not show a central tubular element as defined in claim 1, claim 2 is properly patentable along with claim 1.

Claim 3 defines the invention as including steel lateral plates and is believed patentable along with claim 1. In paragraphs 28 and 29, the Examiner rejected claim 3 as unpatentable over Hayashi in view of Tunkers (paragraph 28) or Umeda (paragraph 29). Neither Tunkers nor Umeda supplies all of the deficiencies of the principal reference of Hayashi and, for this reason, claim 3 is properly to Applicant.

Claim 4 has been amended to set forth that the perimeters and the openings of the lateral plates are defined by laser beam machining. Thus, claim 4 now recites the structure resulting from the use of laser beam machining and is believed patentable along with claim 3.

Claim 5 has been amended to more clearly set forth the structural arrangement wherein the mobile arm is mounted on a fixed pivot shaft which, in turn, is mounted between the opposing lateral plates. The claim clearly sets forth the physical mounting of the mobile arm and an inner connection with the activation roller which is adapted to be guided by elongated holes in the plates. As noted above, the mobile arm of the Hayashi reference is pivoted to the piston rod and not to a fixed shaft which in Applicant's case functions to maintain the clamping effectiveness of the mobile arm. Thus, claim 5 is properly patentable along with claim 1.

Claim 6 has been amended to set forth that the mobile arm is pivoted on a fixed pivot shaft between the plates and is actuated by an activation roller engaging an elongated hole in the arm which has a straight area providing an irreversible area on triggering. The arrangement of the elongated hole provides a latching function which assures that the arm is maintained in

clamping position by the fixed pivot shaft and is not relying on the movable piston rod to avoid reversing movement of the mobile arm. This arrangement as claimed in claim 6 is neither suggested nor disclosed by the Hayashi patent in which the arm for the mobile electrode relies on the position of the piston rod of the pneumatic cylinder and does not provide a latching arrangement as claimed in claim 6.

Claim 7 defines the arrangement for closing the longitudinal opening through which the mobile arm moves during operation. The Hayashi patent does not provide a slot through which the mobile arm moves nor does the Dellach patent. The Dellach patent shows an encasing means 70 having a cover 72. However, the mobile arm 22 of the Dellach patent does not move through a slot in the cover, as required by claim 7, and there is no second metal band carried by the arm for covering a slot, as required by claim 7. The Dellach patent does not supply the deficiencies of the Hayashi patent in meeting the terms of claim 1 and for this additional reason, claim 7 is properly patentable over the Examiner's combination of Hayashi with Dellach, as set forth in paragraph 31 of the Official Action.

Claim 8 is directly more specifically to the arrangement wherein the pneumatic cylinder is mounted within the central tubular element with spacing serving as a passage for air connecting the upper with the lower parts of the cylinder. None of the references teaches or suggests an arrangement of a pneumatic cylinder within a tubular body. Claims 9-11 define a pneumatic shock absorber of the application illustrated in Figs. 8, 9 and 10. The arrangement shown in Fig. 1 of the Hayashi patent does not meet the structural limitations of Applicant's structure as defined in claims 8-11. Accordingly, these claims are properly patentable over the Hayashi patent.

Claim 13 has been made dependent solely upon claim 1 and sets forth a sensor housing. None of the cited references shows a sensor housing mounted as set forth in claim 13 and for this additional reason, claim 13 is believed properly patentable with claim 1.

Claim 15 defines the bracket shown in Figs. 17-19. Claim 15 is directed to a bracket having a shoulder adapted to fit with a corner at the top edge of the tubular body of the clamp. The Hayashi patent does not have a tubular body and, accordingly, does not meet the language of claim 15. Since claim 15 incorporates the subject matter of claim 1, claim 15 is properly patentable along with claim 1.

Claim 16 was rejected in paragraphs 32 and 33 on the combination of Takahashi with Hayashi. The Takahashi patent does not supply the deficiencies of the Hayashi reference as

defined in claim 1, and, accordingly, the addition of Takahashi does not render claim 16 unpatentable.

Claim 17 defines the transverse recess of Applicant's invention with greater particularity and are believed allowable along with claim 1. Furthermore, the claim sets forth Applicant's cover elements which have no counterpart in the Hayashi reference.

For the foregoing reasons, it is submitted that claims 1-11, 13, 15-17 and 19 are all properly patentable to Applicant and favorable reconsideration leading to prompt passage of the case to issue is respectfully requested.